	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	12807	(franked or franking or mailing or postage or frank or mail or ship or shipping or tax) near5 (token or indicia or indicium or imprint or imprinting or impression or impression or inprinting or inprint or postmarking or postmark or marking or mark or stamping or stamped or stamp or image)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 13:05
2	BRS	L2	75755	(franked or franking or mailing or postage or frank or mail or ship or shipping or tax or token or indicia or indicium or imprint or imprinting or impression or impression or inprinting or inprint or postmarking or postmark or marking or mark or stamping or stamped or stamp or image) near5 (labeling or labeled or label or tape or strip)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 13:05
3	BRS	L3	159579	(franked or franking or mailing or postage or frank or mail or ship or shipping or tax or token or indicia or indicium or imprint or imprinting or impression or impression or inprinting or inprint or postmarking or postmark or marking or mark or stamping or stamped or stamp or image) near5 (change or changeable or changed or changing or variable or alter or altering or altered or modify or modifying or modified)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 13:06

	Type	L #	Hits	Search Text	DBs	Time Stamp
4	BRS	L4	74137	(franked or franking or mailing or postage or frank or mail or ship or shipping or tax or token or indicia or indicium or imprint or imprinting or impression or impression or inprinting or inprint or postmarking or postmark or marking or mark or stamping or stamped or stamp or image) near5 (unchange or unchanged or fixed or unchanging or invariable)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 13:07
5	BRS	L5	4782	3 same 4	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 13:07
6	BRS	L6	18643	3 and 4	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 13:07
7	BRS	L7	7685	3 near5 (print or printed or printing or preprinting or preprinted)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 13:07
8	BRS	L8	3243	4 near5 (print or printed or printing or preprinting or preprinted)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 13:07
9	BRS	L9	213	7 same 8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 13:07
10	BRS	L10	448	7 and 8	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 13:07

	Type	L #	Hits	Search Text	DBs	Time Stamp
11	BRS	L11	125	2 and (5 or 6) and (9 or 10) Scanned Ti, Ph, Kwic all	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 13:07
12	BRS	L12	120	("4580144" or "4673303" or "4813912" or "5122967" or "5200903" or "5408416" or "5508933" or "5583779" or "5680463" or "5712916" or "5734723").pn. or ((@pd<=19710101 not @pd<=19470101) and (101/71 or 283/71 or 283/72 or 380/51 or 705/400 or 705/401 or 705/408).ccls.) — Scanned Ti all	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2003/06/21 14:06

	Document ID	Issue Date	Inventor	Current OR	Current XRef	Pages
1	EP 376576 A	19900704	GILHAM, D T			10
2	EP 172561 A	19860226	CALVI, S et al.			8
3	FR 2646943 A3	19901116	AUGUIN, DENIS et al.		705/400; 705/FOR.100	15
4	US 6347794 B1	20020219	Scrymgeour, Lyle Harold et al.	273/138.1	273/139	14
5	US 6234477 B1	20010522	Scrymgeour, Lyle Harold et al.	273/139	273/138.1; 283/100; 283/85; 283/903; 283/94	16
6	US 6188996 B1	20010213	Sansone, Ronald P.	705/408		12
7	US 6145885 A	20001114	Scrymgeour, Lyle Harold et al.	283/94	283/903	12
8	US 5894792 A	19990420	Heinrich, Klaus et al.	101/91		7
9	US 5848401 A	19981208	Goldberg, Robert M. et al.	705/408	101/71; 283/71; 346/143; 347/109; 347/2	15
10	US 5734723 A	19980331	Windel, Harald et al.	380/55	380/51; 382/101; 382/184	43

L11 results

	Document ID	Issue Date	Inventor	Current OR	Current XRef	Pages
11	US 5712916 A	19980127	Windel, Harald et al.	380/51	380/55; 705/405; 705/408	44
12	US 5680463 A	19971021	Windel, Harald et al.	380/51	705/401	44
13	US 5471925 A	19951205	Heinrich, Klaus et al.	101/91	705/408; 705/410	8
14	US 5408416 A	19950418	Gilham, Dennis T.	705/406	101/71; 705/408	10
15	US 5038153 A	19910806	Liechti, Hans-Peter et al.	347/4	347/12	8
16	US 4979131 A	19901218	Suzuki, Michio	358/1.17		13
17	US 4673303 A	19870616	Sansone, Ronald P. et al.	347/103	101/425; 101/91; 346/21; 347/19; 347/2; 347/33; 347/4; 400/54; 400/695; 400/82	10
18	US 4580144 A	19860401	Calvi, Salvatore J.	347/171	101/109; 101/288; 101/93.07; 101/93.12; 219/469; 219/476; 235/101; 346/24; 347/212; 347/218; 400/82	8

L11 results

	Document ID	Issue Date	Inventor	Current OR	Current XRef	Pages
1	EP 376576 A	19900704	GILHAM, D T			10
2	EP 376575 A	19900704	GILHAM, D T			7
3	EP 298775 A	19890111	GILHAM, D T			8
4	DE 3729342 A	19880303	CHICKNEAS, A A et al.			16
5	US 4673303 A	19870616	CHANG, M S H et al.			10
6	EP 172561 A	19860226	CALVI, S et al.			8
7	US 5734723 A	19980331	Windel, Harald et al.	380/55	380/51; 382/101; 382/184	43
8	US 5712916 A	19980127	Windel, Harald et al.	380/51	380/55; 705/405; 705/408	44

L12 results

	Document ID	Issue Date	Inventor	Current OR	Current XRef	Pages
9	US 5680463 A	19971021	Windel, Harald et al.	380/51	705/401	44
10	US 5583779 A	19961210	Naclerio, Edward J. et al.	705/408	380/51	6
11	US 5508933 A	19960416	Abumehdi, Cyrus	705/408		7
12	US 5408416 A	19950418	Gilham, Dennis T.	705/406	101/71; 705/408	10
13	US 5200903 A	19930406	Gilham, Dennis T.	705/408	177/25.15; 235/375; 235/432; 705/410	8
14	US 5122967 A	19920616	Gilham, Dennis T.	700/235	221/71; 705/401	7
15	US 4813912 A	19890321	Chickneas, Arthur A. et al.	705/408	235/375; 347/2; 358/1.6; 380/51	16
16	US 4673303 A	19870616	Sansone, Ronald P. et al.	347/103	101/425; 101/91; 346/21; 347/19; 347/2; 347/33; 347/4; 400/54; 400/695; 400/82	10

L12 results

	Document ID	Issue Date	Inventor	Current OR	Current XRef	Pages
17	US 4580144 A	19860401	Calvi, Salvatore J.	347/171	101/109; 101/288; 101/93.07; 101/93.12; 219/469; 219/476; 235/101; 346/24; 347/212; 347/218; 400/82	8

L12 results

US-PAT-NO: 4580144
DOCUMENT-IDENTIFIER: US 4580144 A
TITLE: Postal fixed and variable data thermal printer
DATE-ISSUED: April 1, 1986
INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Calvi; Salvatore J.	Ridgefield	CT	N/A	N/A

US-CL-CURRENT: 347/171, 101/109 , 101/288 , 101/93.07 , 101/93.12 , 219/469 , 219/476 , 235/101 , 346/24 , 347/212 , 347/218 , 400/82

ABSTRACT: The invention features a high speed thermal printing mechanism having a dichotomized printing sequence. The thermal printing mechanism is particularly useful for printing postal values and indicia upon postage tape in a variable and fixed format, respectively. The variable information can be imprinted by a thermal head under the influence of a microprocessor. The fixed information can be imprinted by an etched thermal print screen.
19 Claims, 3 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 3

---------- KWIC ---------

Abstract Text - ABTX (1): The invention features a high speed thermal printing mechanism having a dichotomized printing sequence. The thermal printing mechanism is particularly useful for printing postal values and indicia upon postage tape in a variable and fixed format, respectively. The variable information can be imprinted by a thermal head under the influence of a microprocessor. The fixed information can be imprinted by an etched thermal print screen.

Brief Summary Text - BSTX (5): More recently, with the advent of automated postage stations, thermal printers have replaced the previous fixed dies for printing postage. The thermal printing mechanisms are uniquely adaptable for use within these automated postage stations, in that they are capable of printing indicia, slogans, postal values, and other postage information in a facile manner. These thermal printing mechanisms are easily controlled by a microprocessor that initiates voltage pulses for heating the thermal printing elements to rapidly provide a postage stamp.

Brief Summary Text - BSTX (9): The variable postage data such as postal value and date is easily iniltiated through electronic input to a thermal head printer as previously accomplished.

Brief Summary Text - BSTX (12): The above bifurcated arrangement not only provides for a speedier thermal printing of postage, but also has the further advantage of providing better postage meter security. This is accomplished by the fact that the meter number and eagle indicia have a unique design and are additionally in place within the system. Such indicia cannot be easily altered or modified within the course of normal postage meter operation.

Brief Summary Text - BSTX (15): The Takiguchi et al invention does not contemplate the possible

use of a flash lamp for the purpose of providing heat to transfer ink from a printing ribbon which is in operational contact between an etched screen and a postage tape.

Brief Summary Text - BSTX (19): The presently disclosed invention by contrast has a fixed indicia printing screen that allows light to pass therethrough to melt and transfer ink from a ribbon to a postage tape in select areas of the pattern.

Brief Summary Text - BSTX (21): The invention pertains to an electronic postage meter featuring a thermal postage printing mechanism. The thermal printing mechanism prints postage indicia and postal values in a respective fixed and variable format.

Brief Summary Text - BSTX (22): A first thermal printing means generally comprises a rotatable drum having an etched screen on its peripheral surface containing fixed indicia, such as a pattern of an eagle. A heat source within the drum projects energy through open portions of the screen to transfer ink from a ribbon to a postage tape.

Brief Summary Text - BSTX (23): A second thermal printing means disposed adjacent the first printing means generally comprises a printing head that prints variable postage information, such as postal values, in response to voltage pulses initiated by electronic signals.

Brief Summary Text - BSTX (25): A postage tape dispenser provides tape to a feed mechanism that carries the tape along a feed path past the first and second thermal printers.

Brief Summary Text - BSTX (33): It is another object of the invention to provide an improved, high speed thermal printing mechanism that prints a composite postage stamp comprising both fixed and variable information.

Detailed Description Text - DETX (2): Generally speaking, the electronic postage meter of this invention features a high speed thermal printing mechanism that provides a composite stamp comprising both fixed and variable thermally printed information.

Detailed Description Text - DETX (5): Now referring to FIG. 1, an electronic postage meter 10, of a type contemplated by this invention, is illustrated. The postage meter 10 is provided with a keyboard 11 for introducing into the system variable information, such as the postage selected to be printed. A display 12 is electrically connected to the keyboard 11 for indicating the selected and printed postage and for informing the user of account balances and other operating information. Similar keyboards and displays are shown and described in U.S. Pat. No. 3,938,095, issued to Frank Check, Jr. et al, the disclosure of which is meant to be incorporated herein by way of reference. The postage meter 10 has a slot 13 from which the printed postage tape (not shown) is ejected.

Detailed Description Text - DETX (13): In the print head 18 at the variable information print station 30 of FIG. 3, it is preferable that the heating elements be formed in a single row and arranged perpendicular to the direction of travel of a paper postage tape, as described hereinafter.

For best results, there are about 224 elements in the row. The elements are heated as required for the purpose of melting an ink composition on a thermal transfer ribbon 23 (FIG. 3). The ink on the transfer ribbon is caused to be lifted off the ribbon at the point of heating and transferred to the paper postage tape traveling in conjunction with the thermal postage tape. The CPU 14 controls the sequencing of motor drivers 19 which are used to dispense the tape and ink ribbon, as will be described in more detail with respect to the print mechanism, depicted in FIG. 3.

Detailed Description Text - DETX (14): Referring now to FIG. 3, the thermal printing mechanism 25 comprises two, adjacent thermal printing stations 20 and 30, respectively. The thermal printing stations 20 and 30 are disposed along a postage tape feed path, defined by arrows 40. The first printing station 20 thermally prints the fixed indicia, such as the postage eagle insignia, upon the postage tape. The second printing station 30, as aforementioned, thermally prints the variable postage information, such as postage value, upon the postage tape.

Detailed Description Text - DETX (15): Printing stations 20 and 30 operate in sequence and are electrically and mechanically in registration with each other, such that the two printings upon the tape properly form a composite, or completed postage stamp.

Detailed Description Text - DETX (16): The postage tape is dispensed from a tape supplying roll 21 at the lefthand side of mechanism 25. The roll 21 is rotatively driven by one of the motor drivers 19, previously mentioned in the exposition of the circuitry of FIG. 2. Another motor driver 19 is utilized to dispense a thermal ink transfer ribbon 23 from supply spool 22 by driving take-up spool 29, as shown.

Detailed Description Text - DETX (17): The dispensed ink transfer ribbon 23 meets the postage tape at the nip 24 created by the support roller 26 and thermal printing drum 27. From here, the ribbon 23 and the postage tape are carried together forwardly along the tape feed path 40 past printing stations 20 and 30, with the imprinted postage tape ejecting at point 28, corresponding to ejection slot 13 of FIG. 1, and the spent transfer ribbon 23 being stored upon take-up spool 29.

Detailed Description Text - DETX (18): The fixed information printing station 20 comprises an idler belt 31 carried by three rollers 26, 32, and 38 of which roller 32 may be rotatively driven. The idler belt 31 provides support for the postage tape as it is carried into and out of contact with the thermal printing drum 27.

Detailed Description Text - DETX (19): The thermal printing drum 27 has an "eagle" indicia etched in a screen 33 carried by one-half the circumference of the outer drum surface. A heat or flash lamp 34 is disposed at the center of the drum, and irradiates the thermal ink transfer ribbon 23 through the open spaces in the etched screen 33. The image of the "eagle" is transposed by the melting ink of the ribbon which is henceforth transferred to the postage tape disposed adjacently the transfer ribbon 23.

Detailed Description Text - DETX (20): The drum 27 is made to rotate counterclockwise one complete revolution for each section of postage tape with which it comes in contact.

Detailed Description Text - DETX (22): As will be obvious to the skilled practitioner, the slogan will require a tape segment of double length. This is accomplished by the cutter blade 39 located upstream of the thermal printing station 20. As the tape supply roll 21 dispenses the postage tape, the tape is caused to move between feed rollers 41, which are driven in synchronism with printing drum 27 and the tape supply roll 21. In normal operation, the cutter blade 39 located between feed rolls 41 will cut a standard tape segment. When the slogan insert member 36 is in place within drum 27, a switch or sensor (not shown) in the drum 27 will cause the supply roll 21 and the cutter blade 39 to provide a double length of tape.

Detailed Description Text - DETX (24): The postage tape after having been imprinted with fixed information at printing station 20, will them move to the variable information printing station 30, as aforementioned.

Detailed Description Text - DETX (25): As the postage tape is traveling past the thermal head 18, the thermal transfer ribbon 23 is also traveling in conjunction with the tape. In response to output commands from the microprocessor, the thermal elements of the thermal head 18 are heated in a patterned sequence to create the desired image line-by-line on the tape traveling past the head as the ink coating on the thermal transfer ribbon is heated and lifted from the thermal transfer ribbon and deposited on the paper tape. The microprocessor will initiate the proper voltage pulses to actuate the heating elements in the print head 18. The variable information will be imprinted upon the postage tape in the open spaces provided within the alrady printed indicia.

Detailed Description Text - DETX (26): The postage tape is then discharged from between discharge rollers 42, and the spent transfer ribbon 23 is stored on reel 29.

Claims Text - CLTX (1): 1. An electronic postage meter having a thermal postage printing mechanism for the printing of postage indicia and postal values in a respective fixed and variable format, said thermal postage printing mechanism comprising:

Claims Text - CLTX (2): means for defining a postage tape feed path;

Claims Text - CLTX (3): means for dispensing postage tape along said path;

Claims Text - CLTX (4): a first thermal printing means disposed along said feed path for printing fixed postage indicia upon said postage tape, said first thermal printing means including a heat source and a rotatable drum substantially surrounding said heat source, said rotatable drum supporting an etched screen containing said fixed indicia;

Claims Text - CLTX (5): a second thermal printing means disposed adjacent said first thermal printing means for printing variable postage information upon said postage tape, said second thermal printing means including thermal heating elements responsive to voltage pulses initiated by electronic signals related to a postage value; and

Claims Text - CLTX (6): means for dispensing a thermal ink transfer ribbon between said first and

second thermal printing means and said postage tape, wherein ink from said ribbon is transferred to said postage tape by said first and second thermal printing means to form a composite postage print.

Claims Text - CLTX (7): 2. The electronic postage meter of claim 1, wherein said postage tape dispensing means is capable of dispensing two different lengths of postage tape.

Claims Text - CLTX (12): 7. The electronic postage meter of claim 1, further comprising cutting means disposed along said feed path for cutting said postage tape into a given length.

Claims Text - CLTX (14): 9. The electronic postage meter of claim 1, wherein said drum comprises means for inserting an additional screen for printing a slogan upon said postage tape.

Claims Text - CLTX (15): 10. An electronic postage meter having a thermal postage printing mechanism for the printing of postage indicia and postal values in a respective fixed and variable format, said thermal postage printing mechanism comprising:

Claims Text - CLTX (16): means defining a postage tape feed path;

Claims Text - CLTX (17): means for dispensing postage tape along said feed path;

Claims Text - CLTX (18): a first thermal printing means disposed along said feed path for printing fixed postage indicia upon said postage tape, said first thermal printing means including a heat source and a rotatable drum substantially surrounding said heat source, said rotatable drum supporting an etched screen containing said fixed indicia;

Claims Text - CLTX (19): a second thermal printing means disposed adjacent said first thermal printing means for printing variable postage information upon said postage tape, said second thermal printing means including thermal heating elements responsive to voltage pulses initiated by electronic signals related to a postal value, said first and second thermal printing means operating in concert with a thermal ink transfer ribbon between said first and second thermal printing means and said type to form a composite postage print.

Claims Text - CLTX (20): 11. The electronic postage meter of claim 10, wherein said first and second thermal printing means comprises a dispensing means for placing a thermal ink transfer ribbon adjacent said postage tape.

Claims Text - CLTX (25): 16. The electronic postage meter of claim 10, further comprising cutting means disposed along said feed path for cutting said postage tape into a given length.

Claims Text - CLTX (26): 17. The electronic postage meter of claim 16, wherein said cutting means has the capability of cutting said postage tape into different lengths.

Claims Text - CLTX (28): 19. A printing mechanism for the printing of indicia and numerical

values in a respective fixed and variable format, said thermal printing mechanism comprising:

Claims Text - CLTX (31): a first thermal printing means disposed along said feed path for printing fixed indicia upon said tape, said first thermal printing means including a heat source and a rotatable drum substantially surrounding said heat source, said rotatable drum supporting an etched screen containing said fixed indicia;

US-PAT-NO: 5408416
DOCUMENT-IDENTIFIER: US 5408416 A
TITLE: Franking machine
DATE-ISSUED: April 18, 1995
INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gilham; Dennis T.	Brentwood	N/A	N/A	GB

US-CL-CURRENT: 705/406, 101/71 , 705/408

ABSTRACT: A machine for printing a postage stamp for application to a mail item includes a a thermal printer to print the stamp on a tape of thermally sensitive paper. The speed of feeding of the tape is controlled to be uniform to synchronize with the operation of the printer. The printer is non-secure and accounting for the value of postage charge printed on the stamps is accomplished by machine reading of the stamps by the Postal Authority. The stamp printing machine generates an accumulated value of postage charge for a series of stamps printed and then prints, on the same tape, a label including an indication of user account and accumulated value, the value preferably being in encoded form.

5 Claims, 9 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 4

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Abstract Text - ABTX (1): A machine for printing a postage stamp for application to a mail item includes a a thermal printer to print the stamp on a tape of thermally sensitive paper. The speed of feeding of the tape is controlled to be uniform to synchronize with the operation of the printer. The printer is non-secure and accounting for the value of postage charge printed on the stamps is accomplished by machine reading of the stamps by the Postal Authority. The stamp printing machine generates an accumulated value of postage charge for a series of stamps printed and then prints, on the same tape, a label including an indication of user account and accumulated value, the value preferably being in encoded form.

Brief Summary Text - BSTX (4): The purchase and affixing of postage stamps is inconvenient particularly for regular senders of postal items requiring variable postage such as small commercial users of the postal service. In order to overcome the need for purchase of postage stamps prior to despatch of postal items, franking machines were introduced. Franking machines are operated by persons or companies desiring to despatch postal items and are operated under licence from the postal authority. The franking machine is caused to print on the postal item a frank impression of a form prescribed by the postal authority which includes an impression of the value of postage franked on the item. In order for the user of the franking machine to be able to account to the postal authority for the value of postage used to the satisfaction of the postal authority, it has been necessary to provide the franking machine with accounting means to maintain an accurate record of the usage of the machine and the accumulated value of franking applied by the machine. Commonly, the postal authority requires prepayment for usage of the

machine. Accordingly the machine includes a register to record the value of credit, purchased by the user from the postal authority, which remains available for usage in franking. The machine is constructed such that, when the registered value of credit decreases to a predetermined low limit, the machine locks and prevents further usage of the machine until additional credit has been entered in the register of the machine by the postal authority in response to payment by the user. Modern franking machines utilize electronic circuits for carrying out accounting and control functions within the machine. These circuits include a micro-processor and memory devices providing registers for registering accounting values. The registers usually include a descending register into which the value of purchased credit is entered and which is decremented during usage of the machine by the value of franking used in each franking transaction. The registers also include an ascending register to register the accumulated value of franking used and an items register for registering the number of mail items franked by the machine. In order to maintain integrity of the values registered in the various registers, each of the registers is replicated, each replication storing corresponding values. Thus if due to a fault in the operation of the electronic circuits the value registered in one of the replications of a register differs from the value registered in the other replications of that register an indication is provided that a fault has occurred and the true accounting value can be retrieved from the other replications of that register.

Brief Summary Text - BSTX (5): If the electronic accounting circuits and the value setting mechanisms by which print elements for printing the value of franking are unprotected, the values registered in the registers and/or the values of postage printed in the franking could be changed by anyone with fraudulent intent. Accordingly it has been necessary to house the circuitry and printing mechanism in a secure manner such as to prevent unauthorised access to these parts of the machine.

Brief Summary Text - BSTX (8): According to one aspect of the invention a postage stamp printing machine comprises electronic control means; means to store data relating to fixed information to be printed; means to input selected variable postage rate data to the control means; printing means operable by said control means to effect a printing routine in which the fixed information and the selected variable postage rate information is printed; feed means to feed a mail item past the printing means to cause printing of a postage stamp on the mail item; means to control the speed at which said mail item is fed to a substantially constant speed.

Brief Summary Text - BSTX (9): It is preferred to print the stamp on a paper tape and accordingly the postage stamp printing machine may include severing means operable to sever a printed stamp from the paper tape.

Brief Summary Text - BSTX (15): The statement label may be printed on the same paper tape as that on which the postage stamps are printed.

Drawing Description Text - DRTX (7): FIG. 4 (b) illustrates the format of a stamp printed on the paper tape of FIG. 4(a) by the stamp printer,

Drawing Description Text - DRTX (8): FIG. 4(c) illustrates the format of a stamp printed on a

plain paper tape.

Drawing Description Text - DRTX (10): FIG. 6 illustrates a sequence of stamps and a label printed on the tape and severed therefrom.

Detailed Description Text - DETX (2): Referring first to FIG. 1, the stamp printer comprises a micro-processor 10, a read only memory 11, a random access memory 12 and an input/output device 13 interconnected by a system bus 14. If desired the micro-processor, memories and input/output device may be implemented in a single integrated circuit chip. A thermal print head 15 comprising a line of print elements which are selectively energisable to heat selected print elements is connected to the input/output device 13. A tape of heat sensitive paper is fed past the print head, in a direction transverse to the line of print elements, by means of a feed roller and co-operating pressure roller, the pressure roller being effective to maintain the tape in contact with the elements of the print head as the tape passes the print elements. The feed roller is driven by a motor 16 energised by a motor drive circuit 17. The motor drive circuit is controlled by an output on line 18 from the micro-processor 10. Printing data for printing a stamp on the tape is sent to the print head serially and is clocked by clock signals on a clock line of the system bus 14. Feeding of the paper tape is maintained at a substantially constant speed so that printing is effected in synchronism with movement of the paper tape. The speed of feeding the paper tape is sensed by a sensor 19 driven with the feed roller 34 which, as shown in FIGS. (2) and 2(b), may consist of a disc 20 on the feed roller shaft 21 provided with a track 22 of alternate transparent and opaque regions and a photo transistor 23 responsive to light transmitted through the transparent regions from a source of light 24, such as a light emitting diode. Signals from the photo transistor 23 consisting of a train of pulses whose repetition rate is proportional to the speed of rotation of the feed roller are input to the micro-processor 10 on line 25. The micro-processor utilizes these signals to control the motor drive circuit 17 such as to maintain the speed of rotation of the feed roller substantially constant. The speed of the motor is controlled by the magnitude of power input to the motor. The motor may be driven by a train of pulses from the drive circuit and the power input to the motor may be varied by varying the width of pulses at constant frequency or by varying the frequency of the constant width pulses. Alternatively, a digital output from the micro-processor representing the magnitude of power input to the motor may be converted, by a digital to analogue converter, to an analogue signal which is input to a power operational amplifier to produce a variable voltage output drive to the motor, the voltage magnitude being such as to provide the desired magnitude of power to the motor.

Detailed Description Text - DETX (8): FIG. 3 illustrates the sequence of operations in a print routine in which print data is output to the print head and in which the speed of the motor is controlled. After initiation 60 of a print routine, print data for the next line to be printed by the print head is set up 61 from a table stored in one or more registers of the read only memory 11 by the micro-processor 10. The micro-processor outputs a control signal on line 18 to the motor drive circuit to cause the motor to be energised 62 to provide a desired drive speed for the feed roller. The print data for the next line to be printed is output 63 to the print head and the print head is energised by a print strobe signal 64 to cause those elements, selected to be energised by the print data, to be energised to print a line of the required stamp impression on the paper tape.

The micro-processor then samples the output from the sensor 19 to check 65 whether the speed of rotation of the feed roller is correct 66. If the roller speed is correct and decision block END OF PRINT 67 indicates that further lines of print are to be printed 68, the next line of print is set up and the print routine repeated as described hereinbefore. If all lines of print have been printed 69, the print routine is ended 70 . If, when the micro-processor samples the output of sensor 19, the speed of the roller is not correct 71 the micro-processor modifies the output to the motor drive circuit to adjust 72 the power input to the motor such as to tend to bring the feed roller to the required speed prior to effecting printing of the next line of print. After the end 70 of the print routine, the micro-processor 10 outputs a signal on line 30 to operate the paper cutter 31 to sever the printed stamp from the remainder of the paper tape.

Detailed Description Text - DETX (10): The memory 12 would generally be non-volatile so that it will continue to retain the record of postage values printed after the stamp machine is switched off. For this purpose, a back-up battery would be provided to power the memory 12 when power to the stamp machine is switched off. Thus the memory 12 may be utilized to provide a long term record of usage of the machine. The memory 12 may store a rate chart to provide data relating to postage charges and data which is varied from time to time, for example due to changes in the postage charges set by the postal authority, may be changed by inputting new data via the keyboard or via an external connection to the stamp machine.

Detailed Description Text - DETX (12): The paper tape 37 on which the stamp is to be printed may be pre-printed with fixed postal data as shown in FIG. 4(a) and postage data relating to the specific stamp is printed thereon by the stamp printer to produce a completed stamp 49 as shown in FIG. 4(b). Alternatively the paper tape may be totally blank and the completed stamp 49 then carries only data printed on the paper tape by the stamp printer as shown for example in FIG. 4(c). Preferably the stamps of either form include reference identity marks to enable the location of the stamp and/or selected printed data to be identified by machine reading facilities operated by a postal authority. Marks 53 identifying specific data carried by a printed stamp may be printed on the stamp by the print head as part of the print routine. Thus when a mail item bearing a printed stamp is passed through the machine reading device, detection of one mark identifies the start of the postage value and detection of the subsequent mark identifies the end of the value. Marks provided for a machine reading device to identify the location of the printed stamp and a value or code 41 thereon may comprise a stripe 32 printed with fluorescent ink. This stripe would be printed by a separate print head which may comprise a pre-impregnated pad moved into contact with the label. Conveniently, the pad may be secured to the paper cutter such that when the cutter is operated, the pad is brought into engagement with the stamp which has just been printed.

Detailed Description Text - DETX (13): The data printed on the paper tape to form the stamp may additionally include advertising material such as shown at 33 in FIG. 4(c). It is preferred that the paper tape 37 has a self adhesive back surface to facilitate adhering of the printed stamps to mail items. Accordingly, the paper tape is provided with an easily removable backing layer 43.

Detailed Description Text - DETX (16): The printer may be arranged to be able to print a statement label 50 after completion of a session of use of the machine in which a series of stamps

have been printed and severed as shown in FIG. 6. Such a label may include a listing of individual items with postage values together with a total of number of items and total postage value. Furthermore data on the printed stamps 49 and statement label 50 may be in machine readable form to enable mechanised reading of the stamps and/or statement label at a service counter. If the printed data includes identification of a user account it would be possible for unrestricted posting of mail items at any convenient entry point to the postal service. For this purpose the identification data and payment data would need to be provided in a secure form to prevent fraud. In order to effect this security of data, the read only memory 11 would store an algorithm and a user would enter and store an account code in the memory 12. The user would enter a personal identifier (PIN) at the start of a stamp printing session and this would be used as an encryption key with the algorithm to code data including the account data and payment data for any set of mail items stamped in a session. An authorisation for payment together with the statement label and set of mail items bearing stamps printed by the stamp machine would be placed in a special service identified envelope and posted as a single entity. The receiving office of the postal authority would then remove the items from the envelope and verify the correctness of the charging data by machine reading the stamps and statement label and then use the machine read charge data to carry out accounting functions to debit the users account and to update the account records of the postal authority. The random access memory, or part thereof powered by back-up battery may be utilized to store the account code and if desired it may store a table of postage values related to type of service and weight of mail item. The program for the micro-processor 10 would then include a routine to calculate postage rates from an input on the keyboard of the mail item weight and the service required, e.g. first or second class inland or surface or airmail overseas postage.

Detailed Description Text - DETX (17): The stamp printing machine may be arranged to accommodate differing requirements by different postal authorities with regard to the format of the printed stamp or statement label. Thus fixed printing data may be loaded at a service point and stored in a part of the random access memory powered by back-up battery.

Detailed Description Text - DETX (18): The mechanical arrangement of components of the stamp printing machine is shown in FIG. 5 in a housing 35. The thermal print head 15 is located between a pair of feed rollers 34 on a common drive shaft 21, the disc of the sensor 19 also being mounted on this shaft. The pressure roller 36 extends across the width of the print head and across the pair of feed rollers and is resilient or resiliently mounted to press against print thermal elements, indicated by reference 51, of the print head and against the pair of feed rollers 34. The feed rollers are driven by an electric motor (not shown) to draw a paper tape 37 from a roll 38 of tape and to feed the tape past and in contact with the print head elements to an exit slot 39 in the housing. Between the print head and the exit slot there is located a cutter 31 which may be operated, manually or by an output from the micro-processor as hereinbefore described, to sever the printed stamp from the web of paper tape. A pad 40 pre-impregnated with fluorescent or phosphorescent ink is mounted adjacent the cutter 31 and operable by operation of the cutter to print the fluorescent or phosphorescent stripe 32 across the end of the printed stamp. Thus the label separating means and the stripe printing means are integrated with one another and ensure correct positioning of the stripe relative to the stamp. However, if desired, the paper tape may be provided with the stripe 32 pre-printed on the tape and the stamp printer would then be provided with the

sensor 52 connected to the microprocessor 10 via the input/output circuit 13 to detect the stripe and thereby enable the printing of the stamp to be correctly positioned relative to the stripe.

Detailed Description Text - DETX (19): While the stamp printer has been described hereinbefore in relation to printing of postage stamps for use in a mail system operated by a postal authority, the stamp printer may be utilized in connection with services provided by a number of carriers by the provision of different print formats for stamps and statement labels and different registers in the memory.

Claims Text - CLTX (14): storage means for storing data relating to fixed postage data; and

Claims Text - CLTX (15): said electronic accounting and control means being responsive both to said data stored by said storage means relating to fixed postage data and to said input data representing selected variable postage data to produce printing data signals to operate said line of thermal printing elements selectively in a series of clock cycles to print in a line by line manner said fixed postage data and said selected variable postage data on said mail item during feeding of said mail item past said line of thermal printing elements.

Claims Text - CLTX (16): 2. A postage stamp printing machine as claimed in claim 1, further including severing means operable to sever a length of postage tape bearing the fixed postage data and the variable postage date printed by operation of the printing means from a supply of said postage tape.

Claims Text - CLTX (17): 3. A postage stamp printing machine as claimed in claim 2, further including a pad impregnated with ink movable into engagement with the length of postage tape to impress thereon an ink mark, said pad being movable into said engagement with said length of postage tape by operation of the severing means.

Claims Text - CLTX (26): said electronic accounting and control means including memory means for storing accounting data and electronic processing means for reading and writing said accounting data respectively from and to said memory means and operable to carry out accounting operations in respect of said accounting data and selected variable postage data input represented by said input data generated by said interface circuit as a result of manual operation of said keys of said keyboard;

Claims Text - CLTX (30): said electronic accounting and control means being responsive to said input data and representing selected variable postage data to produce printing signals to operate said printing means to print said selected variable postage data.

US-PAT-NO: 5848401
DOCUMENT-IDENTIFIER: US 5848401 A
TITLE: Hand-held portable postage meter that uses pre-printed tape
DATE-ISSUED: December 8, 1998
INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Goldberg; Robert M.	Jericho	NY	11753	N/A
Rosenberg; Jerome R.	New York	NY	10016	N/A

US-CL-CURRENT: 705/408, 101/71 , 283/71 , 346/143 , 347/109 , 347/2

ABSTRACT: A highly secure hand-held portable postage meter is disclosed that uses partially pre-printed postal tape. Only the date and postage amount remain to be printed on the tape by the meter. The postal tape, pre-printed by Postal Authority, is enclosed within the meter in a removable cartridge. In one embodiment, a new cartridge being pushed into the meter pushes the used cartridge out. An anti-tamper lock is released by a probe key, on the leading face of the cartridge, that couples with a receptor on the trailing face of the used cartridge.
21 Claims, 9 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 7

--------- KWIC ---------

Abstract Text - ABTX (1): A highly secure hand-held portable postage meter is disclosed that uses partially pre-printed postal tape. Only the date and postage amount remain to be printed on the tape by the meter. The postal tape, pre-printed by Postal Authority, is enclosed within the meter in a removable cartridge. In one embodiment, a new cartridge being pushed into the meter pushes the used cartridge out. An anti-tamper lock is released by a probe key, on the leading face of the cartridge, that couples with a receptor on the trailing face of the used cartridge.

TITLE - TI (1): Hand-held portable postage meter that uses pre-printed tape

Brief Summary Text - BSTX (2): Postal systems grant a franking privilege (the right to have mail delivered) to those who pay proper postage. The proper amount of postage depends upon the weight, destination, and nature (class) of the mail. Self-adhesive and water-base glued stamps of fixed denomination, as well as metered stamps printed in varying denomination, are available for purchase at post offices. These stamps serve as proof that payment was made, and, in the case of commemorative stamps, may have numismatic value for collectors.

Brief Summary Text - BSTX (3): In the United States, businesses and other users of large numbers of stamps of varying denomination can avoid frequent trips to the post office by leasing a postage meter from an authorized private contractor. Leased postal meters contain a continuous roll of blank, approved postal meter tape upon which the selected amount of postage, the date, and possibly other numerical data, together with graphical material contained on an indicial plate, are printed. These machines are large, table-top units, are inspected on a monthly basis, and have

elaborate means for preventing fraudulent use of the franking privilege.

Brief Summary Text - BSTX (7): U.S. Pat. No. 5,271,322 (Palma) teaches a disposable stamp marker that stamps a fixed preset amount onto a piece to be mailed along with an impression of an official government seal. A pulse counter with a preset limit displays the number of stamps remaining, and when it reaches zero the marker stamp is destroyed.

Brief Summary Text - BSTX (15): Partially printed postal meter material is similar to ordinary, fixed denomination postage stamps, in that: each of these has graphic material; each, when provided on rolls can have tear-off perforations; each can be printed and maintained in bulk, under controlled security. But the postal denomination of meter stamps is variable and is printed by the postage meter itself in amounts selected by the patron. The date and other printing may also be variable. A variety of different commemorative material can be offered, in color if desired, giving the stamps produced by these postage meters numismatic value.

Brief Summary Text - BSTX (24): Our postage meters can have various features: the printing of variable selected postage, the date, serial number or other security marking, and an advertising message; the calculation of postage based upon destination, weight, and class; the direct weighing of the item; various ways of arranging for the payment of stamps printed, that is, the administration of the system. The administration of a system for hand-held postage meters can include: a pre-paid amount held in a charge register that is debited by the amount of each printed stamp; an accumulative register that totals the amount of each printed stamp and which is reset periodically when the amount of postage due is paid. To ensure that all the stamps which are printed are paid for, can involve identifying the user and/or limiting printing to definite, recorded amounts. The use of our postage meters can be restricted to a particular individual or to anyone possessing the correct physical token, such as a data card or a mechanical key. The printing of a serial number on each metered postage stamp, that can identify that particular meter and perhaps even that particular stamp, has been suggested as an effective way to deal with fraud.

Brief Summary Text - BSTX (34): The use of pre-printed meter material means that meter stamps cannot be easily counterfeited. The pre-printed meter material will be printed by the postal authorities using high quality ink and printing means and can contain graphic material that is difficult to reproduce. Serial numbers or marks can be applied that identify individual postage meters or individuals. Furthermore, if one were inclined to defraud the Postal Authority by counterfeiting stamps, a much more attractive target would be ordinary, complete, fixed denomination stamps.

Brief Summary Text - BSTX (36): As illustrated by the ink release, 12, in FIG. 3a, an ink reservoir may also provide a security feature. If an attempt is made to remove the cartridge from the postage meter without inserting the proper key, which preferably is contained in the leading face of new cartridges, ink is automatically dispensed from the reservoir, 5, via ink release, 12, onto the edges of the roll of postal meter tape or stack of discrete media, and/or over the print mechanism. This permanently invalidates the tape, cancels the franking privilege, and/or leaves the print capability in questionable condition. The invalidation of the residue of the tape, by the

inking of the edges, can be performed whenever a cartridge is replaced, or only in response to unauthorized attempts to acquire tape from the meter or to otherwise tamper with the meter. Selection of the absorbency of the meter paper and/or selection of more viscous ink can ensure that, in meters with inked type, the roll of meter tape is sufficiently marred when ink is dispensed, while still producing crisp print in normal usage. In addition to using ink to mar the edge of media, in response to tamper, other actions can be taken in meters that use other types of printer. For example, when a dot matrix or thermal transfer printer is used, the print ribbon can be cut or shredded, If tampering is sensed, in order to prevent further printing.

Detailed Description Text - DETX (2): FIGS. 1 and 2 show a particular embodiment of a postage meter of the present invention. Various features used to enter and display data, compute the required postage, print the selected data on the tape, securely provide a roll of pre-printed meter tape in a cartridge, etc. are shown in phantom by lighter lines or are omitted to avoid clutter in the drawing. As described below, FIGS. 1 and 2 differ in that the print means shown in FIG. 1 are general, while inked mechanical print wheels with raised type are shown in FIG. 2.

Detailed Description Text - DETX (3): The removable cartridge, 1, is shown held in place by the cartridge lock, 26. The cartridge has a lock, 3, and key, 24 (both shown in FIG. 3a and FIG. 3b). This arrangement is used to protect against unauthorized removal of a cartridge and to allow authorized removal without damage to the meter or invalidation of the meter tape. The security lock arrangement can be based upon various known physical sensor technologies e.g., mechanical, optical, or electronic. Only when the proper key is inserted into the lock, as illustrated by 25 in FIG. 3b, will the held locking pin, 27, release and permit the cartridge to be pushed out of the meter body, 23. The means for accomplishing release of the locking pin are not shown and may be a mechanical linkage from lock, 3, or an electrical signal that actuates a solenoid, or other means known to those in the field. When a fresh cartridge of meter tape is inserted into the postage meter, the electronic accounting register(s) can be automatically initialized to zero (accumulative type) or, alternatively, to the value of stamps that the user has purchased (debit type); electronic means for accomplishing this can be within the body of the meter or within the cartridge.

Detailed Description Text - DETX (12): Within the removable cartridge is a roll of postal meter tape, 4, preprinted by the Postal Authority with indicia for identification and security. These include the fact that it is postage of the United States or another country, and may include a serial number and/or other unique markings.

Detailed Description Text - DETX (17): In either of the embodiments shown in FIGS. 1 and 2, the perforation finder, 16, senses the end of the tape and helps to determine the proper position for printing. The tape tension motor, 38, or other tension means, holds the tape taut so that there is good registration between the print head, 12 or the type on the print wheels, 11, and the areas of the tape to be printed upon. A postage meter might need to print on tape of several different sizes and shapes. This information can be communicated to the micro controller, in the electronics module, 8, in various ways that are known to those working within the art, and the movement of the tape would be adjusted, accordingly. The completed stamp, shown in FIG. 4b, is transported and ejected, or shown at 14, from the meter through the stamp exit opening, 15.

Detailed Description Text - DETX (28): Any meter in accordance with this invention can be provided with an internal electronic clock that automatically advances the date every 24 hours. This data is applied to the appropriate position on the meter tape at the same time that the postage amount and any other data are printed. FIG. 7 shows an internal electronic clock 53 within the electronics module 8.

Detailed Description Text - DETX (36): positions the meter tape for printing and moves the printed stamp out the exit opening;

Claims Text - CLTX (25): (b) a cartridge within said housing containing a roll of postal tape comprising sequential identical partially-printed separable postal stamps, said postal tape carrying adhesive on one sides and on the other side having on each stamp pre-printed indicia for identification and security and blank spaces for receiving further printing;

Claims Text - CLTX (28): (e) means for advancing the postal tape and dispensing the thus-printed stamp;

Claims Text - CLTX (39): (a) a mechanically secure housing having opposed openings for respectively insertion and removal of a tape cartridge, and an opening for dispensing stamps;

Claims Text - CLTX (40): (b) a cartridge containing a roll of postal tape comprising sequential identical partially-printed separable postal stamps, said postal tape carrying adhesive on one sides and on the other side having on each stamp pre-printed indicia for identification and security and blank spaces for receiving further printing;

Claims Text - CLTX (43): (e) means for advancing the postal tape and dispensing the thus-printed stamp;

Claims Text - CLTX (50): 13. A postage meter according to claim 11, wherein a used tape cartridge is removed from the meter through one of said openings by being pushed out by a new cartridge entering through the opposite opening.

US-PAT-NO: 6188996
DOCUMENT-IDENTIFIER: US 6188996 B1
TITLE: System for metering permit mail
DATE-ISSUED: February 13, 2001
INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sansone; Ronald P.	Weston	CT	N/A	N/A

US-CL-CURRENT: 705/408

ABSTRACT: A permit mail metering system that preprints the non-variable portion of an indicia. The pre-printed portions may be printed with a fluorescent and phosphorescent ink, while other pre-printed portions may be printed using standard colored or black inks. Some variable printed portions may be printed with a fluorescent and phosphorescent ink, while other variable portions may be printed using standard colored or black non-luminescent inks.
25 Claims, 7 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 7

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Abstract Text - ABTX (1): A permit mail metering system that preprints the non-variable portion of an indicia. The pre-printed portions may be printed with a fluorescent and phosphorescent ink, while other pre-printed portions may be printed using standard colored or black inks. Some variable printed portions may be printed with a fluorescent and phosphorescent ink, while other variable portions may be printed using standard colored or black non-luminescent inks.

Brief Summary Text - BSTX (4): Governments have created postal services for collecting, sorting and distributing the mail. The postal service typically charges mailers for delivering the mail. Mailers may pay the post office for its service by purchasing a stamp, i.e., a printed adhesive label, issued by the post office at specified prices, that is affixed to all letters, parcels or other mail matter to show prepayment of postage. The placing of one or more stamps on a mail piece is a labor intensive endeavor. Thus, stamps typically are used by individuals, small or home offices and small businesses.

Brief Summary Text - BSTX (10): This invention overcomes the disadvantages of the prior art by utilizing a system that reduces the amount of labor required to produce permit mail. The foregoing is advantageous to the mailer because it reduces the amount of time the mailer spends in the preparation of postal forms and the performance of postal procedures. The variable data indicia printer is able to run at a more rapid rate than normal indicia printers because the amount of information to be reprinted is much less. This is important because it saves the mailer labor and time and it enables the mail to reach the post office sooner. The foregoing is advantageous to the post office by reducing the acceptance processing time. This reduces the post office's labor and enables the mail to enter the delivery system sooner.

Brief Summary Text - BSTX (12): This system also provides means for the mailer to add additional information fields to convey postal instructions to the postal service. This invention accomplishes the forgoing by prepринting the non-variable portion of an indicia. Some pre-printed portions may be printed with a fluorescent and phosphorescent ink, while other pre-printed portions may be printed using standard colored or black inks. Some variable printed portions may be printed with a fluorescent and phosphorescent ink, while other variable portions may be printed using standard colored or black inks.

Brief Summary Text - BSTX (14): Another advantage of this invention is that it provides additional security for permit mail. The foregoing is accomplished by placing variable information within the permit indicia or in the vicinity of the permit indicia. The variable information may be printed with a fluorescent and phosphorescent ink to further increase the security of the permit indicia. The variable information may also be printed with a black or colored ink.

Drawing Description Text - DRTX (5): FIG. 4 is a drawing showing the pre-printed postal indicia of FIG. 3 containing variable information specific to the piece of mail that the indicia has been affixed to;

Detailed Description Text - DETX (12): FIG. 4 is a drawing showing pre-printed postal indicia 25 of FIG. 3 containing variable information specific to the piece of mail that the indicia has been affixed to printed in block 33. Block 33 contains the date 34, the amount of postage 35, the class of postage 36 and an indication that the postage has been paid 37. It will be obvious to one skilled in the art that the information printed in block 33 may be printed in another area of indicia 25 or in an area in the vicinity of indicia 25.

Claims Text - CLTX (3): means for printing variable payment information within the postal indicia or

Claims Text - CLTX (18): means for printing variable payment information within the postal indicia or within the vicinity of the postal indicia wherein a portion of the pre-printed information is printed with a phosphorescent ink and the remaining portion of the pre-printed information is printed with a non-luminescent ink.

Claims Text - CLTX (21): means for printing variable payment information with the postal indicia or within the vicinity of the postal indicia wherein a portion of the variable information is printed with a fluorescent ink and the remaining portion of the variable information is printed with a non-luminescent ink.

Claims Text - CLTX (24): means for printing variable payment information within the postal indicia or within the vicinity of the postal indicia, wherein a portion of the variable information is printed with a phosphorescent ink and the remaining portion of the variable information is printed with a non-luminescent ink.

Claims Text - CLTX (30): pre-printing a portion of the postal indicia with fixed information; and

Claims Text - CLTX (31): printing variable information within the postal indicia or within the vicinity of the postal indicia.

DERWENT-ACC-NO: 1990-202943
DERWENT-WEEK: 199622

TITLE: Postage stamp printer with non-secure thermal printer - prints on paper tape moving in synchronism with passage of mail item beneath printer head
INVENTOR: GILHAM, D T
PRIORITY-DATA: 1988GB-0030421 (December 30, 1988)
PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 376576 A	July 4, 1990	N/A	000	N/A
DE 68926034 E	April 25, 1996	N/A	000	G07B 017/02
US 5408416 A	April 18, 1995	N/A	010	G06F 015/20
EP 376576 B1	March 20, 1996	E	012	G07B 017/02

INT-CL (IPC): G06F015/20, G07B017/00 , G07B017/02

ABSTRACTED-PUB-NO: EP 376576A

BASIC-ABSTRACT:

A keyboard (26) of a calculator module provides for input of variable postage rate data to the printing machine controller. Fixed information from a read-only memory and the variable rate data are provided by the controller to the printer for printing on a mail item (37) fed past the printer.

The speed at which a mail item is fed is controlled by a microprocessor and the data for printing to form the stamp are clocked by signals synchronised with movement of the paper tape on which the stamp is printed.

ADVANTAGE - Requires no security for registers storing e postage data because payment is derived from data printed by postal authority.

ABSTRACTED-PUB-NO: EP 376576B

EQUIVALENT-ABSTRACTS:

A postage stamp printing machine including electronic accounting and control means (10) means (11) to store data relating to fixed information to be printed; a keyboard (26) to input selected variable postage data to the control means (10); a data display device (28) operate to display output data from said electronic accounting and control means (10); printing means (15) operable by said electronic accounting and control means (10); feed means (34,36) driven by drive means (16,17) to feed a mail item (37) past the printing means (15) at a substantially constant speed during operation of the printing means (15) by said electronic control and accounting means in a printing routine to effect printing of the fixed information and the selected variable postage data; characterised by the provision of a calculator module (29) incorporating said keyboard (26) and display device (28), said calculator module (29) including electronic calculating means (44) operable to scan keys of the keyboard (26) to detect operation thereof and to operate said display device (28) to display data corresponding to an operated key of the keyboard (26), and by the

provision of interface circuits (27) connected to the keyboard and operative in response to scanning of the keys of said keyboard (26) to input data corresponding to an operated key of said keyboard (26) to the electronic accounting and control means (10) said interface circuits (27) including switch means (46,47) connected across contacts of the keys of the keyboard (26), said switch means (46,47) being operable by output signals from the electronic accounting and control means (10) to emulate operation of a corresponding key of the keyboard (26) and thereby be sensed during scanning of the keyboard by the electronic calculating means to cause data output from the electronic accounting and control means (10) to be displayed by the display device (28).

US 5408416A

The machine includes a calculator module including a keyboard, a data display device and electronic calculator. The latter is operable to scan keys of the keyboard to detect operation of the keys and then input data corresp to operated ones of the keys to the electronic calculator. The latter is operative in response to the input data to drive the display device to display the input data.

The machine also incorporates a electronic accounting and control device including a memory device for storing accounting data and an electronic processing device for carrying out accounting operations on the accounting data and for reading and writing the accounting data respectively from and to the memory device.

USE/ADVANTAGE - For applying printed stamps to postal items. Reduced cost for aiming at users who despatch relatively small quantities of postal items.

PUB-NO: FR002646943A3
DOCUMENT-IDENTIFIER: FR 2646943 A3
TITLE: Franking machine
PUBN-DATE: November 16, 1990
INVENTOR-INFORMATION:
NAME COUNTRY
AUGUIN, DENIS N/A
CICCONE, JEAN N/A
INT-CL (IPC): G07B017/00
EUR-CL (EPC): G07B017/00 ; G07B017/00
US-CL-CURRENT: 705/400, 705/FOR.100

ABSTRACT:

CHG DATE=19990617 STATUS=O> The machine for printing an imprint on a medium includes a matrix printer 4 for printing variable characters in a central strip of the imprint, and a drum composing buffer 2, for printing fixed characters of the imprint, on either side of the central strip. The printer 4 and the buffer 2 are offset in the direction 16 of movement of the medium. The machine includes a microprocessor 6 for driving the printer 4, controlling the drum 2, indexing the variable and fixed characters and selecting the variable characters. The machine of the invention is well adapted to low franking throughputs. <IMAGE> e of the

DIALOG 21 JUNE 2002

File 2:INSPEC 1969-2003/Jun W2 (c) 2003 Institution of Electrical Engineers
File 9:Business & Industry(R) Jul/1994-2003/Jun 20 (c) 2003 Resp. DB Svcs.
File 15:ABI/Inform(R) 1971-2003/Jun 21 (c) 2003 ProQuest Info&Learning
File 16:Gale Group PROMT(R) 1990-2003/Jun 20 (c) 2003 The Gale Group
File 20:Dialog Global Reporter 1997-2003/Jun 21 (c) 2003 The Dialog Corp.
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Set	Items	Description
S1	5802	(FRANK??? OR MAIL??? OR POSTAGE OR FRANK???? OR SHIP OR SHIPPING OR TAX) (5N) (TOKEN OR INDICIA OR INDICIUM OR IMPRINT???? OR IMPRESSION OR INPRESSION)
S2	314316	(FRANK??? OR MAIL??? OR POSTAGE OR FRANK???? OR SHIP OR SHIPPING OR TAX) (5N) (INPRINT???? OR POSTMARK???? OR MARK???? OR STAMP???? OR IMAGE)
S3	34288	(INDIC??? OR IMPRINT???? OR IMPRESSION OR INPRESSION OR INPRINT??? OR POSTMARK??? OR MARK OR STAMP???? OR IMAGE) (5N) (LABELING OR LABELED OR LABEL OR TAPE OR STRIP)
S4	34288	(INDIC??? OR IMPRINT???? OR IMPRESSION OR INPRESSION OR INPRINT??? OR POSTMARK??? OR MARK OR STAMP???? OR IMAGE) (5N) (LABELING OR LABELED OR LABEL OR TAPE OR STRIP)

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S9 6457 (S5 OR S6) (S) (S7 OR S8)
S10 22016 (S5 OR S6) AND (S7 OR S8)
S11 4675 (S5 OR S6) (5N) (PRINT OR PRINTED OR PRINTING OR PREPRINTING OR PREPRINTED)
S12 789 (S7 OR S8) (5N) (PRINT OR PRINTED OR PRINTING OR PREPRINTING OR PREPRINTED)
S13 58 S11 (S) S12
S14 113 S11 AND S12
S15 0 (S1 OR S2) AND S15
S16 31 (S3 OR S4) AND (S9 OR S10) AND (S13 OR S14)
S17 31 RD S16 (unique items) [Scanned ti,kwic all]
S18 113 (S9 OR S10) AND (S13 OR S14)
S19 111 RD S18 (unique items) [Scanned ti,kwic all]

19/9/9 (Item 1 from file: 148)
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09992122 SUPPLIER NUMBER: 20189516 (THIS IS THE FULL TEXT)
Print 97 review. (exhibit)
Roth, Jill; Lampartner, William C.
American Printer, v220, n2, p32(4)
Nov, 1997
ISSN: 0744-6616
LANGUAGE: English
RECORD TYPE: Fulltext; Abstract
WORD COUNT: 2979
LINE COUNT: 00239

ABSTRACT: Several exhibitors from the print and printing machinery industry participated in the Print 97 Exhibit. New products, processes and mechanisms to be used in the print industry were inroduced. However, the participating companies gave special emphasis on computer-to-plate systems, plates and digital proofing devices. These systems will be available in the market in 1998.

TEXT:

Attendees at Print were barraged innovations for today's real-world problems and tomorrow's challenges

With more than 1,100 exhibitors spread out across 900,000 sq. ft. of space, Print 97 was nothing if not exhaustive. Attendance totaled out at 96,000, and exhibitors reported brisk sales and enthusiastic interest.

A good time seems to be had by all, but it's time to step back and think about what trends we can identify after eight days at Print.

If press conferences are any indicator, prepress dominated the new product introductions, with special emphasis being placed on computer-to-plate (CTP) systems and plates, as well as digital proofing devices.

At last count, there were 47 vendors of CTP devices, reminding us of the early days of imagesetters when everybody wanted a piece of the action. Although we believe the action in the CTP arena is picking up, don't expect all of these vendors to remain in the market for the long haul. Common sense tells us that the field will eventually be narrowed to somewhere around 12 to 15 vendors, which should be able to offer a wide enough product range to satisfy this very diverse industry.

Aside from market leaders Gerber and Creo, new CTP devices were highlighted from Citiplate/Basysprint, Agfa, Luscher, Krause, Misomex, A.B. Dick, Scitex, Presstek, Purup/Eskofot, Iris, ICG, Screen, Fuji, Cymbolic Sciences, Optronics, Printware and the list goes on and on. Perhaps of most importance was the number of plate manufacturers that have refined their product offerings. Today, there are more than nine manufacturers offering plates to support CTP.

Of special note is the processless thermal plate co-developed by Gerber and DuPont using the Silverlith SDT plate. The plate uses a "smart" layer of thermally sensitive silver-based material, bonded to a grained, anodized aluminum base.

DuPont markets this plate as the ZP (zero processing). It is rated for runs from 500,000 to one million. With the acquisition of DuPont's plate business by Agfa, look for a change in distribution sometime in the future. However, this is not quite a done deal, especially with European concern over market dominance by Agfa. We'll just have to watch this one play out.

Other thermal plates are being offered from veterans Kodak, Mitsubishi Imaging, Anitec, Polychrome, Printing Developments Inc., Western Lithotech and Presstek.

One of the more interesting concepts discussed at Print in the area of CTP comes from Iris, best known for its color proofing devices. Iris is in the process of developing a CTP system that uses ink-jet technology to image directly onto raw aluminum plates. The targeted market is the small commercial or quick printer that wants to take a step forward in quality. With an anticipated price point under $100,000, this CTP system from Iris deserves close watching.

We must all keep in mind, however, that successful CTP is more dependent on workflow than on the output device. Companies such as Creo and Gerber have understood this and are developing software products to automate workflow and facilitate a total systems approach.

With the introduction of Agfa's Galileo CTP system, scheduled to ship in 1998, the market will see the introduction of a system that integrates plates, plate handler, imaging engine and processor in a single unit. Combine that with Agfa's front-end system to find yet another solution to CTP workflows.

Then don't forget Heidelberg. We aren't used to thinking of Heidelberg as a prepress company, but since its acquisition of Linotype-Hell and alliances with Kodak and Creo, Heidelberg Prepress is a major player in the market. The firm showed CTP systems ranging from the Herkules to the Gutenberg devices, as well as Creo's popular Trendsetter units. The interesting thing here is Heidelberg's commitment to integrated production, using prepress data to set ink keys (more on that later).

Also on the workflow front, we are seeing Cortron's euRIPides PDF management system being implemented in a number of devices. Consisting of several modules, the workflow software creates job tickets and specifications for production, converts files from PDF, TIFF-IT, DCS and EPS, and runs preflight checks of PostScript files.

If you are handling all those huge files, don't forget to look at two other companies' offerings. One is the AFX 410 file management server from Augment Systems. This server enables users to move large files to their RIPing stations and output servers. Users report file transport speeds up to 30 times faster than standard LANS.

Ask printers why they don't buy into CTP, and too often the answer has to do with digital proofing. Many graphic arts execs don't feel there are adequate proofing solutions on the market. Print 97, however, may prove them wrong.

Two new systems are currently available using Imation proofing material. One is the Presstek system, which combines a digital proofing device with a CTP engine, featuring the RIP-in-the-middle concept. Newer to the marketplace is Creo's Sprectrum proofer, which is a standalone, large-format digital halftone device. It is available in a four-page model, producing a proof every 20 minutes or an eight-page model that outputs in about 30 minutes.

One of the most interesting digital proofing devices introduced comes from Polaroid

Graphics Imaging. PGI has gone through some trying times during the past few years, but seems to have found new focus at Print. Its Dry Jet proofing device is enjoying success, with execs reporting 200 installations to date. At Print, however, the company introduced another proofing technology that holds great promise.

The PolaProof is a digital halftone proofing system that replicates ink pigments and halftone dots. It can image on the paper stock that the job will run on. And for those who want a slicker, glossier proof, a lamination system is available. One glossy book publisher was heard to comment that this proof "addressed all the problems with digital proofing." Although we might not go that far, it's technology worth checking out.

In a CTP environment, however, not all digital proofing has to be halftone. DuPont has addressed the problem of digital imposition proofs with its Digital Dylux material. Currently optimized to run on Gerber's Impress double-sided signature proofer, the Digital Dylux proofing media accepts two-sided ink-jet application.

Space doesn't permit us to discuss every area of prepress technology, so it is with regret that we must skim over digital cameras (quietly making significant inroads in our industry); storage and archiving technology (check out DataVation's DataVast or Grande Vitesse's RAID systems); large-format digital printers and controllers (Laser-Master is now ColorSpan so don't get confused); scanners (especially flatbed and vertical designs); imagesetters (rapidly becoming hybrid platesetters); data transmission (a subject in itself) and RIPs (we could devote a whole issue to this subject). All these subjects, will be investigated in more detail during the coming months.

Now let's move onto pressroom innovations. There were four trends emerging from the pressroom during Print 97.

1. CTP to press links and the CIM trend. The highly visible computer-to-plate-to-press linkups signaled the acceleration of the digital bridge building between CTP and the press. Partnerships and joint ventures between CTP and press manufacturers are a sure sign of the digital integration of prepress and press. Also clearly evident was Print's slow evolution to computer-integrated manufacturing (CIM).

CIP3 logos popped up in several booths, indicating compliance with the standards and protocols being advanced by the International Cooperation for the Integration of Prepress, Press and Postpress 28-member consortium. (See AMERICAN PRINTER, September 1997, page 48 for a detailed discussion of CIP3 and page 11 of this issue for an update on the latest developments in this area.)

Heidelberg, Komori and MAN all demonstrated CTP-to-press controls as part of their emerging digitized network production systems concept. All three touted existing alliances or new ventures with prepress manufacturers.

Pointing the way to a CIM future, Heidelberg demonstrated CPC32/CIP3 compliant workflow links. These links operated from Herkules and Gutenberg platesetters, as well as Creo Trendsetter devices, to several operating sheet-fed presses.

MAN Roland announced a strategic alliance with Agfa, demonstrating file transmission from an Apogee print drive workstation to the Galileo CTP system. The online communication also included MAN 306 and 708 sheet-fed presses printing four- and six-color Hexachrome posters, brochures and a magazine.

After re-affirming its pact with Optronics last spring and remaining committed to its PTP systems, Komori expanded its scope by kicking off its Print activities with an announcement of

a strategic alliance with Scitex. Initially, the two companies are focusing on interfacing their respective systems under CIP3 protocols.

The first such effort is an interface for presetting ink keys from the Scitex Brisque to the Lithrone Print Quality Control (PQC) console. Additional CIP3 functions for other job data are in development.

2. Digital presses move closer to the mainstream. Digital printing presses running during **Print** 97 - producing both **fixed** and **variable image** products - emerged as increasingly viable technology for the mainstream printer. Concept and technology demonstrations of digital presses under development clearly showed that this equipment is on the cusp. When commercially available, it has the ability to nudge offset production for a more significant share of the industry's print volume.

The hottest booths at Print displayed new technology presses that will not be commercially available until 1998 or 1999, perhaps even 2000. Of special note were the 74 Karat press, a joint venture between Scitex and KBA, and the Concept press from Goss Graphic Systems.

The 74 Karat features some unique technology and a strikingly different configuration. It uses a digitally exposed waterless offset plate (currently from Presstek) and falls in the same direct-to-press category as the Heidelberg Quickmaster-DI and Omni-Adast DI series.

The Scitex/KBA press is 20.5 x 29 inches and is rated at 10,000 sheets per hour. It is a highly automated offset press featuring computer-to-on-press platemaking. The simple-to-operate press can be run by a machine tender (as opposed to skilled press operator), claims the manufacturer. There are virtually no press adjustments to be made, which means that the press is "dumb," controlled almost entirely through prepress functions.

This approach is made possible, in part, through the use of a keyless, self-calibrating ink system that uses a full form diameter anilox or gravure-type cylinder. Dubbed "Gravuflow" by Scitex/KBA, the system is simple, but appears to noticeably reduce waste while producing good solids, a precise dot structure and repeatably consistent printing. This inking concept could also show up on conventional offset equipment.

Goss Graphic Systems demonstrated a single-color unit of a 22-inch wide variable cutoff press. The press features a digitally imaged and erasable cylinder and single fluid technology, which eliminates the use of a dampener. The press also is equipped with gapless image and blanket cylinders and shaftless/gearless individual cylinder drives.

Known either as the Automated Image Makeready (AIM) web press or, more formally, as the Advanced Digital Offset Printing Technologies Concept Press (ADOPT/CP), the unit employs a laser and printing cylinder coated with chemicals to form an imaging system that is erasable. Erasable it may be, but it is not intended to produce variable images.

The Concept press uses traditional offset materials with no special ink or paper requirements. The laser exposure writes an erasable copper image from solution onto a nickel-crystal coated cylinder to form a traditional ink/water lithographic surface. Printing cylinders - or what passes for reusable plates - can be imaged on or off press.

Goss has long been a proponent of single fluid lithography, but Print was the first public showing of this technology. Ink and water are mixed in a compact unit on the press and fed to the inking roller train, which separates the two fluids at the last roller under a preset shear force. This allows the ink and water to be used on the plate in the normal way. A continuous fresh ink/water emulsion layer is metered out for every image cylinder revolution. The system is keyless, which,

like the previously described Scitex/KBA inking system, puts the onus on the prepress function for achieving correct inking.

MAN Roland also has shown an erasable cylinder press known as the Dicoweb. The concept is being developed in both gravure and offset versions. MAN has announced that this press is going into beta testing. It is intended to be a quick changeover and fast makeready press with on-press imaging and erasing, but not with variable imaging.

While demonstrations of future presses attracted much attention on the show floor, the announcement of a Kodak-Heidelberg joint venture fueled speculative discussions. Although details are lacking, this joint venture is aimed at developing non-impact digital printing solutions. It would seem that the goal is to design and market a "digital" press that can handle high volumes and variable data. While work continues between Kodak and Heidelberg, we don't expect any product announcements until DRUPA 2000.

Meanwhile, both Indigo and Xeikon are moving forward in their efforts. Indigo's demonstrations using digital photography to provide personalized prints minutes later was an eye-opener for many showgoers. The company's Omnius CardPress, which can produce personalized plastic cards in color at 1,000 11 x 17-inch sheets per hour, was an aisle stopper. It demonstrated the use of digital printing in a profitable niche market.

Print served as the launch pad for Xeikon's new 20-inch wide, eight-page digital web press. When combined with the manufacturer's new features, such as color management, trapping and improved memory support, the eight-page configuration appears to offer commercial and direct mail printers quality and flexibility, especially to produce personalized products.

Xeikon also announced its new president, Paul Peyrebrune, and expanded its sales channel with the addition of PrimeSource. PrimeSource has launched a new division, PrimeSolutions, to handle the sales, service and marketing of Xeikon machines in the U.S. In addition, Xeikon engines are used in the IBM InfoPrint 70, Xerox DocuColor 70, Agfa Chromapress and Nilpeter label press. While all use the same engine, each has its own integrated prepress approach and finishing options.

At Print 97, digital printing technology clearly moved into the mainstream for immediate applications and displayed signs of improvement and new press innovation. All of this is expected to result in accelerating market penetration, primarily at the expense of offset printing.

3. Conventional press improvements continue. Despite the digital incursion into the pressroom, incremental, but often significant, improvements in conventional presses generally result in better quality and increases in productivity.

4. Press configurations change; peripherals take on increasing importance. Conventional presses are better than ever but are changing somewhat in configuration. Single-color presses are all but disappearing. Small format presses are moving up to two-, four- and more-color machines - some of which look like duplicators on steroids. Half-size presses (20 1/2 x 29-inch) continue to gain in popularity, but monster sheet-fed perfectors (4/4 or 5/5) are attracting attention at the high end.

With the entry of several new plate suppliers and endorsements from pioneering printers, interest in waterless seems to have revived. While waterless is unlikely to boom, press suppliers report an increasing number of new presses are equipped to print both conventionally and waterless.

A bold claim - the elimination of spray powder in the sheet-fed pressroom - was made by

Aradiant, based in Roxboro, NC. Explaining that the Aradiant system is designed to eliminate spray powder on paper and fibrous board materials printed with conventional inks, president Joseph T. Burgio claims that this is a new drying technology that is not UV and does not require water-based coatings.

The system efficiently applies energy to the ink and paper, as well as controlling the air in the on-press environment. The Aradiant energy generators are placed between each printing unit on a multicolor press to provide repeated energy exposure to multiple cycles of radiant energy and air.

So what about the bindery? Because this is an area deserving more than just passing attention, we have decided to hold off on the bindery coverage until next month, when we will take a look at the computerized bindery. Digital technology has reached the post-press arena, and the superstructure is being put in place to fully automate this last bastion of labor-oriented production. We think this trend deserves its own space - so stay tuned.

Overall, Print fulfilled its promise, providing the graphic arts industry with some practical solutions to real-life problems and a peek into the technology of tomorrow. So even though our feet still hurt from hiking McCormick Place from East to South to North, the rewards have been ample. Since these technologies mature at lightning speed, it's now time for us to wait for Graph Expo here in the U.S. next year and IPEX in England for the next round of innovations.

19/9/8 (Item 4 from file: 16)
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07943849 Supplier Number: 66355321 (THIS IS THE FULLTEXT)

If You Missed drupa 2000, Graph Expo Offers A Handsome, If Streamlined, Recapitulation.

Lamparter, William C.

Printing News, v145, n13, p1
Sept 25, 2000
Language: English
Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 3466

TEXT:

Graph Expo/Converting Expo 2000, which opened its doors yesterday to an avalanche of new and improved printing production technology, is a slimmed-down, encore production of drupa, which lured almost half a million graphic arts professionals--but a relatively small number of American printers--to Dusseldorf, Germany, last May.

In addition to presenting the widest array of commercially available graphic arts machinery, software, and materials for virtually every segment of the graphic arts, drupa is the global showcase for emerging production trends, concept technology, and not-yet-available equipment that is programmed to come to market in a year or two or by the next drupa in 2004. Or, in some cases, for trial balloon items that simply disappear.

Graph Expo/Converting Expo, which occupies almost 500,000 square feet of the McCormick Place complex, is a modest show--at least when compared with drupa's expansive 18 halls and 55 acres of display space. Although new technology is a Graph Expo/ Converting Expo highlight, the U.S. show focuses more tightly on products that are or will very soon be available to the U.S. commercial printing and converting industries.

An analysis of the current and future trends, technology, and equipment shown at these two major expositions provides the printer with a perspective on the technological state of the printing industry as the new millenium gets underway.

It Started at drupa

This report draws on 11 days spent trekking the halls of drupa as well as on information gleaned from pre-Graph Expo/Converting Expo exhibition previews and press releases, to present an update on the state of graphic arts technology.

An overview of the two exhibitions shows that print production is on a track of parallel technology development. Conventional, well-established analog processes are being improved as they become almost completely digitally controlled, monitored, and automated. Fully digital processes, starting with content creation, data management, workflows, proofing, and platemaking, also are reaching into the pressroom, where an increasing number of direct-to-press, **fixed-image** machines (DI) and single color- as well as process color-capable variable digital presses are beginning to move into mainstream production.

The business and production of print is in an uneasy state of transition from analog,

batch-based craft methodology to digital continuous-flow, computer-integrated manufacturing, in which the creator and print buyer are exercising increasing control over the manufacturing process.

This trend was clear at drupa, particularly in the hall dubbed "Print City," where, under the leadership of MAN Roland and Agfa and some 60 other suppliers, multiple ways that print production could be integrated from one function to another and across equipment from different suppliers were demonstrated. The trend is further illustrated at Graph Expo by Heidelberg, as it moves from a focus on individual pieces of equipment to providing the printer with the capability of offering broader "solutions" to the print buyer. In Heidelberg's case, it is also part of the company's evolving business model to be a provider of almost everything for almost everybody involved in the creation and production of printed materials.

Evolution of CTP

An examination of the offerings at drupa and Graph Expo shows that the technologies embedded in the production processes are proliferating. There are more technology choices and equipment variations available than ever before. To make the right choice for a particular situation, the printing production executive must thoroughly understand print buyer requirements and values as well as the nuances of multiple technologies, equipment, and supplies.

Computer-to-plate (CTP), which burst onto the scene at drupa '95, is an example of the high-speed movement of a new technology that is still under development, as evidenced by the increasing number of technological choices offered by the equipment and plate suppliers at Graph Expo/Converting Expo 2000.

Because exposure device capability must be mated to the type of printing plate utilized, the printer contemplating a move to CTP must consider the attributes of external versus internal platesetters, their specific exposure frequency, as well as the type of printing plate to be used. At drupa the violet laser for CTP arrived, the processless CTP plate received considerable attention, inkjet CTP platemaking resurfaced after a couple years' absence, and the use of polyester plates got a significant boost. The polyester development adds additional CTP devices as well as film imagesetters to the equipment consideration.

Although pre-show announcements were scant, a long list of CTP exposure models and plates is expected to be augmented at Graph Expo. The technology fragmentation makes the CTP decision difficult, requiring a combination of spreadsheet analysis, demonstrations on the floor of the show as well as in operating plants, and the gathering of as much information as possible. One place to obtain additional information is the Web forum known as the CTP Pressroom (ctpp@print planet.com).

Focus on DI Technology

Before off-press CTP became an industry buzz word, Presstek, with its partner, Heidelberg, led what has now become a parade of press manufacturers to imaging printing plates on press and creating the direct-to-press or DI concept. At drupa and Graph Expo the concept of on-press imaging became an established press category of its own, to be considered by the serious commercial printer. Every press manufacturer of significance either has or is about to have a DI press version.

Presstek imaging systems are used on small-format presses from Heidelberg, Adast, Sakurai, and Ryobi, while Presstek plates are being used on the 74 Karat, the joint venture press from Scitex and KBA. Other DI presses using Presstek technology and expected to surface next

year include machines from Didde Web Press and Akiyama.

One of the most interesting DI presses introduced at drupa and being shown at Graph Expo is the PAX press, a joint project of Presstek-Adast-Xerox.

The PAX DI, which can interface with Xerox's DigiPath production software and workflow, is a highly automated, two-page, direct-imaging, waterless printing press using Presstek's internal automated plate cylinder design integrated into the body of the press, which comes from Adast, a Czech Republic press manufacturer, and one of the pioneering DI developers.

Rated at 12,000 iph, the PAX DI has a 15x20.5" sheet size with an imaging area of 14.5x19.8" and is available in four- or five-color configurations. Optional perfecting is available in 4/1, 2/2, and 2/3 configurations. Plates can be made in a choice of three resolutions: 1,270, 1,905, and 2,540 dpi. Imaging time at 2,540 is 4.4 minutes with a total makeready under 10 minutes. Polyester plates are fed from an internal cylinder that holds a roll of 37 Presstek Pearl Dry Plus waterless plates.

In addition to its basic DI concept, the versatility of the PAX press, which also can be configured as a 4/1 or 2/3 perfector and with individual unit de-coupling can be used to produce versioned material, makes it attractive for printers catering to the increased targeting requirement of some print buyers.

DI Hybrids

In the versioning mode, a five-color press is set up in a normal CMYK configuration with a second black plate on the fifth cylinder. During the run, the black plate cylinders can be switched so as to change the black content of the work being produced. Once a cylinder is "off the run," it can be re-plated so as to be ready for another version switch. This approach makes it possible to create different versions of the same publication with text changes. The concept becomes competitive with selective binding, which is being shown at Graph Expo with new sophisticated controllers for the production of some versioned products.

Creo/Scitex entered the DI press parade at Ipex '97 in conjunction with Heidelberg and the Speedmaster 74 DI. At drupa, Creo/Scitex, in partnership with Komori, raised the DI bar in size to the eight-page 40" sheetfed range. The showing of the Komori press at drupa was at arm's length, talk was about beta site testing, and there was no indication when the press might be commercial. Since drupa Komori has decided that although some testing is still needed, the press is ready for market.

At Graph Expo the press will be run with a close-up opportunity to see how it operates. Orders for the press will be taken for delivery late next year. In a pre-Graph Expo showing for the trade press, it was evident that the press is market-ready and that in total operation is a highly automated next generation press.

Two DI presses were brought to drupa and are being shown at Graph Expo by Screen, a supplier best known for its pre-press products. First shown at Ipex '98, the TruePress 544, which will handle a sheet size of 21.4x15.5" and uses polyester plates, is a highly automated machine with a unique cylinder arrangement. Printing speed is 4,000 iph for four-color work or 8,000 iph for two-color.

New at drupa 2000, the Screen True Press 744 is a four-color, one-side or 2/2 perfector in the 29x21" size range with essentially the same features as the True Press 544. Ultimately, the 744 is expected to be available in two- and six-color configurations as well as its current four-color

version.

MAN Roland's DICO (Digital Change-Over) Web, a direct-to-press, **fixed-image** plateless offset **printing** system, first shown as a technology demonstration at drupa '95, became commercially available at drupa 2000. Although characterized as a DI press, the DICO Web is unique in that it utilizes an erasable/reusable sleeve to carry the image instead of a one-time-use printing plate. The imaging method of the DICO Web is based on thermal transfer and CreoScitex thermal imaging. Although MAN is accepting DICO Web orders for delivery in Europe, the press will not be shown at Graph Expo and is unlikely to be available in the U.S. before 2002.

LiteSpeed Boosts Changeover

Talked about at drupa and now to be shown for the first time in a Graph Expo technology demonstration, is the on-press, re-usable plate cylinder technology under development by Creo/Scitex using Agfa's LiteSpeed, a fusible liquid lithographic coating material.

In the Graph Expo demonstration of what Creo/Scitex calls its SP Plateless Digital Printing Technology, the Agfa LiteSpeed material is sprayed onto a metal substrate which is, in reality, a reusable grained and anodized aluminum plate, to create a full-form image area that is exposed by a Creo SquareSpot 830 mn laser-diode imaging system. LiteSpeed is a negative-working aqueous coating material that contains fine thermal plastic particles. Heat generated by the laser exposure melts these particles together and fuses them onto the image carrier, creating the printing image. Non-imaged areas remain soluble in fountain solution and/or by ink.

After imaging, plate dampening wets the coated area, and then ink removes the coating in the non-imaged areas, transferring it to the first few printed sheets. According to Agfa, this approach eliminates the need to wipe the plate or remove non-image area materials, requires minimum makeready, and functions with standard inks and fountain solutions. Performance on press is equal to a conventional lithographic plate, Agfa claims.

At Graph Expo, using a Shinohara four-page sheetfed press, Creo expects to be able to change over from one job to the next in less than 10 minutes. In the technology demonstration, cleaning, coating, imaging, and other operations will be performed sequentially while in a commercial product, Creo/Scitex expects that at least some operations will be done in parallel, reducing the changeover time.

Creo, which holds the fundamental patents on spraying lithographic material in a thin coating onto a reusable substrate, is working with several press manufacturers and plate media providers to create a plateless on-press commercial product. In practice, the image carrier could be a reusable plate or a continuous sleeve, which would be replaced after a substantial number of uses or an erasable, reusable, long-life image cylinder.

If you are interested in on-press plating developments, the demonstration will be worth seeing, but don't expect the technology to show up on a commercially available press for at least two years.

Variable Benefits

Variable-imaging, process-color presses have been a star attraction at printing industry exhibitions around the world for the last five years, drupa was no exception, and neither is Graph Expo.

For the increasingly competitive but still emerging process-color, **variable**, digital **printing market**, some visible trends at drupa have extended themselves to Graph Expo. These include:

* Declining operating costs. All suppliers seem to claim the lowest page cost, usually on

the order of $.10 for a single 8.5x11" process-color page, not including the cost of paper. The consensus of analysts, consultants, and journalists who attended drupa was that the cumulative cost was more in the order of $.30 for a fully costed page, including paper. Operating costs are expected to continue to decline.

* Availability of a wider range of products, from low cost entry models to high-end production equipment from established players and new entrants.

* Dramatic improvement in press reliability; declining maintenance costs.

* Color produced is more consistent.

* Capability to run a wider range of paper, although press- or process-specific papers are still required in many instances.

The two process-color-capable variable digital press pioneers, Indigo and Xeikon, began at drupa and continue at Graph Expo to introduce new digital presses and supporting software. For both companies, this includes both web and sheetfed presses as well as both process-color and single-color equipment. At Graph Expo Indigo continued to stage its now-infamous show spectacle and Xeikon its less flamboyant but very workmanlike stands.

Both companies, whose products are based on variations of electrophotographic technology, claim to be the lowest-cost, highest-quality, best-performing color digital press suppliers. The reality is that both have reduced their capital investment costs, brought down operating costs, improved machinery reliability and end-product quality, and extended their product lines. The development of an industry standard for personalization is starting to serve as a catalyst for wider adoption of the technique, which can only be delivered with the use of a variable digital press.

The process color-capable variable digital press pioneers now face a formidable array of competition from Graph Expo exhibitors Heidelberg Digital, Xerox, and Scitex Digital.

Enter Heidelberg and Xerox

At drupa and now at Graph Expo, Heidelberg unveiled its developed-in-secret, much-speculated-about, process color-capable, digital press, dubbed NexPress. Along with its earlier single-color NexPress 9110, a product of the Heidelberg-Kodak joint venture, this equipment pair is the world's largest press manufacturer's entry into **variable-image** digital **printing**.

The full-color NexPress is a two-up (13.8x18.5" maximum sheet size, 13.4x18.1" image format), 600 dpi dry toner electrophotographic sheetfed press rated at 2,100 full form 4/4 impressions per hour. The NexPress will not be available until sometime next year, according to company representatives, who say they expect the system to be priced under $350,000. When NexPress becomes available next year, it will be sold and supported in the U.S. through the Heidelberg USA organization.

With a massive display of digital printing and finishing equipment, Xerox proclaimed at drupa and will echo at Graph Expo its claim that it is not a copying or a document company but rather a supplier of solutions that are becoming what it describes as the "New Business of Printing"--meaning, essentially, digital production, variable printing, and an enabler of personalized and one-to-one marketing. Xerox's "New Business of Printing" ties into the Internet and increases in computing power to generate a 21st century-savvy group of new printing services.

To implement "The New Business of Printing," Xerox is demonstrating at Graph Expo a widening range of products, most of which were also shown at drupa. Major new product

demonstrations center on the DocuColor 2000 series, which was introduced in the U.S. at last February's On-Demand Show in Manhattan. Two versions of the new series--the DocuColor 2045 and 2060--are built around the same engine configuration. They differ only in their operating speeds of 45 and 60 full-color single-sided 8.5x11" ppm. In the perfecting mode, these speeds are cut in hall

The DocuColor 2000 series machines are immediately available and have been shipping commercially since just before drupa. The capital investment cost of the 2000 series runs from about $120,000 for the DocuColor 2045 and under $150,000 for the DocuColor 2060.

Xerox is also showing a full line of monochrome digital presses as well as the new Xeikon DCP/500D, which it calls the DocuColor 130CSX. A Xerox exclusive DFE called the Xerox CSX color server from Creo/Scitex differentiates the machine from other equipment utilizing the same Xeikon engine.

Inkjet Redux

Inkjet imaging is a process that has been around for some 30 years and was once touted as the next major new printing process. Although widely used for single-color coding, marking, addressing, and imprinting personal messages, it has been only recently that process color-capable inkjet printing has moved into the wide-format arena, albeit at very slow speeds. The development of the process for commercial printing applications has lagged behind earlier expectations. Until drupa 2000, that is.

At drupa inkjet printing popped up all over the exhibition grounds, demonstrating its potential as a full-color information printing process. Scitex Digital Printing, Aprion (a Scitex spin-off), and Xaar all demonstrated inkjet printing at drupa that would qualify for at least some commercial printing market applications. The inkjet printing demonstrations to watch are from Scitex Digital Printing with its new VersaMark business color press and from Barco with "The Factory," an industrial digital press utilizing new print heads from Xaar.

Non-Digital Developments

While digital print products from prepress through the pressroom have been under development on the all-digital track, conventional sheetfed and web offset presses also have continued to evolve. At Graph Expo the new digital generation is competing with conventional offset presses mated with computer-to-plate to meet buyers' demands for cost efficiency, high quality, and shorter turnaround.

All conventional press manufacturers offer digital process controls, something close to total press automation, marginally higher speeds, incrementally faster makereadies, and CIP3-compatible ink fountain presets, all moving printing production toward computer-integrated manufacturing.

The new generation of pressroom equipment has de-skilled craftsmanship in favor of science while boosting productivity and quality but requiring high levels of capacity utilization--in some cases, six days around the clock--for a satisfactory return on investment.

As important as these advances are in keeping print competitive, the most potentially significant conventional pressroom advances come from outside the press producers' technology and emanate from the prepress world in the form of proofing changes, computer-to-plate advances, and announcements from two ink suppliers.

Single-Fluid Lithography

Developments from Sun Chemical and Flint Ink resurrected an approach to altering the

chemistry of the lithographic process--single-fluid lithography that eliminates water and dampening.

Heidelberg teamed up with Sun Chemical to develop single-fluid ink technology specifically to speed up the drying time for work produced on the Quickmaster DI 46-4, so that work could be turned for second-side printing or could move into bindery operations more rapidly. The result of the Sun-Heidelberg collaboration is InstantDry W2, which includes both single-fluid inks (SFI) and a compact infrared dryer that has been engineered and integrated into the Quickmaster DI.

Sun has developed a line of single-fluid inks for other sheetfed offset presses including large-format machines. Both lines of single-fluid inks are water-washable, eliminating the need for solvent-based press cleaning, and both need to be used with waterless printing plates and on-press temperature control to maintain the optimum ink viscosity.

Flint Ink, taking a different technical approach, unveiled at drupa a prototype single-fluid ink for four-color process sheetfed applications and a book black for heatset web applications. The SFIs were demonstrated running with Presstek's Anthem CTP thermal plate, but according to Flint, the SFIs can run on any press with any type of plate--special plates, temperature control, and press adaptations are not required.

Single-fluid inks eliminate water and dampening systems, resulting in minimal dot gain, the elimination of the ink/water balance struggle, and achieve an environmental plus in getting rid of waste water. The use of spray powder can be curtailed, if not eliminated. Products printed with single-fluid inks are sharper, more consistent, and save printers time and money.

Single-fluid lithography is still in development but poised for early adoption. If successful, single-fluid lithography could be the most significant medium- to long-term technology unveiled this year. Single-fluid lithography is being shown by Flint and by Sun Chemical's Kohl & Madden Division.

This year's two printing shows offer a glimpse of the immediate future. For a quick take, walk through the Graph Expo displays of the two largest exhibitors--Heidelberg and Xerox--and note how digital and conventional print production technology are converging.

If you miss Graph Expo, be sure to read the forthcoming show reports in Printing News and go to the Web sites of these dueling behemoths.

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